

CLAIMS:

1. A method for obtaining an X-ray image for an X-ray diagnosis apparatus including plurality of imaging systems, the method comprising:

collecting image data including a scatter component using a plurality of X-ray detectors after at least one X-ray is irradiated from an X-ray tube;

collecting scatter data using a plurality of X-ray detectors at a speed higher than a collection time of the image data after at least one X-ray is irradiated from other X-ray tube;
and

obtaining at least one X-ray image by subtracting at least one of the scatter data from the image data including the scatter component.

2. A method for obtaining an X-ray image using an X-ray diagnosis apparatus including a first imaging system including a first X-ray tube and a first X-ray detector and a second imaging system including a second X-ray tube and a second X-ray detector, the method comprising:

collecting scatter data using the second X-ray detector after at least one X-ray is irradiated from the first X-ray tube;

collecting scatter data using the first X-ray detector after at least one X-ray is irradiated from the second X-ray tube and subsequently collecting the scatter data using the second X-ray detector;

collecting, substantially simultaneously, image data including a scatter component using the first and the second X-ray detectors; and

obtaining X-ray images imaged using the first imaging system and the second imaging system by subtracting the scatter data collected by the first and second X-ray

detectors from the image data including the scatter component collected by the first and second X-ray detectors,

wherein a collection time of the scatter data is shorter than a collection time of the image data including the scatter component.

3. A method for obtaining an X-ray image using an X-ray diagnosis apparatus including a first imaging system including a first X-ray tube and a first X-ray detector and a second imaging system including a second X-ray tube and a second X-ray detector, the method comprising:

collecting, substantially simultaneously, scatter data using the first and second X-ray detectors after at least one X-ray is irradiated from the first X-ray tube;

collecting, substantially simultaneously, image data including a scatter component using the first and the second X-ray detectors after at least one X-ray is irradiated from the second X-ray tube; and

obtaining X-ray images imaged using the first imaging system and the second imaging system by subtracting the scatter data collected by the first and second X-ray detectors from the image data including the scatter component collected by the first and second X-ray detectors,

wherein a collection time of the scatter data is shorter than a collection time of the image data including the scatter component.

4. A method for obtaining an X-ray image using an X-ray diagnosis apparatus including a first imaging system including a first X-ray tube and a first X-ray detector and a second imaging system including a second X-ray tube and a second X-ray detector, the method comprising:

collecting, substantially simultaneously, first scatter data using the first and second X-ray detectors after at least one X-ray is irradiated from the first X-ray tube;

collecting second scatter data using the first X-ray detector after at least one X-ray is irradiated from the second X-ray tube and subsequently collecting the second scatter data using the second X-ray detector,

subsequently collecting, substantially simultaneously, image data including a scatter component using the first and second X-ray detectors;

subtracting the second scatter data from the first scatter data, thereby obtaining subtracted scatter data;

obtaining an X-ray image by subtracting the subtracted scatter data from the image data including the scatter component collected by the first X-ray detector; and

obtaining an X-ray image by subtracting the scatter data collected by the second X-ray detector from the image data including the scatter component collected by the second X-ray detector,

wherein a collection time of the scatter data is shorter than a collection time of the image data including the scatter component.

5. An X-ray diagnosis apparatus, comprising:

a plurality of X-ray tubes; and

a plurality of X-ray detectors corresponding to respective X-ray tubes,

wherein each of the plurality of X-ray detectors includes a first image data collection function for collecting image data using a first number of detection elements and a second image data collection function for collecting image data by a second number of detection elements, the second number being fewer than the first number.

6. The X-ray diagnosis apparatus according to claim 5, wherein a distribution range of the detection elements in the second image data collection function is substantially identical to a distribution range of the detection elements in the first data collection function.

7. The X-ray diagnosis apparatus according to claim 5, wherein the X-ray detector comprises:

- a first detection part for collecting the first image data; and
- a second detection part for collecting the second image data.

8. The X-ray diagnosis apparatus according to claim 7, wherein a range of detection of the second detection part is substantially identical to a range of detection of the first detection part.

9. The X-ray diagnosis apparatus according to claim 5, wherein the X-ray detector further comprises a switch configured to switch between the first image data collection function and the second image data collection function.

10. A method for obtaining X-ray image by an X-ray diagnosis apparatus including a first X-ray tube configured to irradiate X-rays in a first direction, a first X-ray detector corresponding to the first X-ray tube, a second X-ray tube for irradiating X-rays in a second direction different from the first direction, and a second X-ray detector corresponding to the second X-ray tube, the method comprising:

collecting first image data using the second X-ray detector based on at least one X-ray irradiated from the first X-ray tube;

collecting second image data using the first X-ray detector based on at least one X-ray irradiated from the second X-ray tube;

collecting third image data at a speed lower than a collecting speed of the second image data using the first X-ray detector based on the X-rays irradiated from the first and second X-ray tubes;

collecting fourth image data at a speed lower than a collecting speed of the first image data using the second X-ray detector, substantially simultaneously with the collecting the third image data, based on the X-rays irradiated from the first and second X-ray tubes;

removing a scatter component included in the third image data using the second image data; and

removing a scatter component included in the fourth image data using the first image data.

11. The method for obtaining X-ray image according to claim 10, wherein a spatial resolution of the first image data is lower than a spatial resolution of the fourth image data.

12. The method for obtaining X-ray image according to claim 11, wherein a spatial resolution of the second image data is lower than a spatial resolution of the third image data.

13. The method for obtaining X-ray image according to claim 10, wherein the collection of the fourth image data is subsequent to the collection of the first image data.

14. The method for obtaining X-ray image according to claim 13, wherein the collection of the third image data is subsequent to the collection of the second image data.

15. The method for obtaining X-ray image according to claim 14, further comprising collecting fifth image data using the first X-ray detector substantially simultaneous to collecting the first image.

16. The method for obtaining X-ray image according to claim 15, wherein the removal of the scatter component included in the third image data uses the fifth image data.

17. The method for obtaining X-ray image according to claim 16, further comprising collecting sixth image data using the second X-ray detector substantially simultaneously to collecting the second image.

18. The method for obtaining X-ray image according to claim 17, wherein the removal of the scatter component included in the fourth image data uses the sixth image data.

19. A method for obtaining an X-ray image using an X-ray diagnosis apparatus including a first X-ray tube configured to irradiate X-rays in a first direction, a first X-ray detector corresponding to the first X-ray tube, a second X-ray tube for irradiating X-rays in a second direction different from the first direction, and a second X-ray detector corresponding to the second X-ray tube, the method comprising:

- collecting first image data using the second X-ray detector based on at least one X-ray irradiated from the first X-ray tube;

- collecting second image data using the first X-ray detector based on the at least one X-ray irradiated from the first X-ray tube;

- collecting third image data using the first X-ray detector based on X-rays irradiated from the first and second X-ray tubes;

collecting fourth image data using the second X-ray detector, substantially simultaneously to collecting the third image data, based on the X-rays irradiated from the first and second X-ray tubes;

removing a scatter component included in the third image data using the second image data; and

removing a scatter component included in the fourth image data using the first image data.

20. A method for obtaining an X-ray image using an X-ray diagnosis apparatus including a first X-ray tube configured to irradiate X-rays in a first direction, a first X-ray detector corresponding to the first X-ray tube, a second X-ray tube configured to irradiate X-rays in a second direction different from the first direction, and a second X-ray detector corresponding to the second X-ray tube, the method comprising:

irradiating at least one X-ray from the first X-ray tube;

collecting first image data using the second X-ray detector based on the at least one X-ray irradiated from the first X-ray tube;

irradiating at least one X-ray from the second X-ray tube;

collecting second image data using the second X-ray detector based on the X-rays irradiated from the first and second X-ray tubes at a lower speed than a collecting speed of the first image data; and

removing a scatter component included in the second image data using the first image data.

21. An X-ray diagnosis apparatus, comprising:

a first X-ray tube configured to irradiate X-rays in a first direction;

- a first X-ray detector corresponding to the first X-ray tube;
- a second X-ray tube configured to irradiate X-rays in a second direction different from the first direction;
- a second X-ray detector corresponding to the second X-ray tube;
- a controller configured to control the second X-ray detector to collect first image data based on at least one X-ray irradiated from the first X-ray tube, the first X-ray detector to collect second image data based on at least one X-ray irradiated from the second X-ray tube, the first X-ray detector to collect third image data based on the X-rays irradiated from the first and second X-ray tubes at a lower speed than a collecting speed of the second image data, the second X-ray detector to collect fourth image data, substantially simultaneously to collecting the third image data, based on the X-rays irradiated from the first and second X-ray tubes at a lower speed than a collecting speed of the first image data; and
- an image processor configured to remove a scatter component included in the third image data using the second image data and to remove a scatter component included in the fourth image data using the first image data.

22. An X-ray diagnosis apparatus, comprising:

- a first X-ray tube configured to irradiate X-rays in a first direction;
- a first X-ray detector corresponding to the first X-ray tube;
- a second X-ray tube configured to irradiate X-rays in a second direction that is different from the first direction;
- a second X-ray detector corresponding to the second X-ray tube;
- a controller configured to control the second X-ray detector to collect first image data based on at least one X-ray irradiated from the first X-ray tube, the first X-ray detector to collect second image data based on at least one X-ray irradiated from the first X-ray tube, the

first X-ray detector to collect third image data based on the X-rays irradiated from the first and second X-ray tubes, the second X-ray detector to collect fourth image data, substantially simultaneously to collecting the third image data, based on the X-rays irradiated from the first and second X-ray tubes; and

an image processor configured to remove a scatter component included in the third image data by using the second image data and to remove a scatter component included in the fourth image data using the first image data.

23. An X-ray diagnosis apparatus, comprising:

a first X-ray tube configured to irradiate X-rays in a first direction;

a first X-ray detector corresponding to the first X-ray tube;

a second X-ray tube configured to irradiate X-rays in a second direction different from the first direction;

a second X-ray detector corresponding to the second X-ray tube;

a controller configured to control the first X-ray tube to irradiate at least one X-ray, the second X-ray detector to collect first image data based on the at least one X-ray irradiated from the first X-ray tube, the second X-ray tube to irradiate at least one X-ray, and the second X-ray detector to collect second image data based on the X-rays irradiated from the first and second X-ray tubes at a lower speed than a collecting speed of the first image data; and

an image processor configured to remove a scatter component included in the second image data using the first image data.